

Caring for a patient in a vegetative state

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The vegetative state was first defined by Jennet and Plum in 1972 (1). It can occur as a result of trauma, hypoxia or degenerative diseases. It can be considered a result of improvements in resuscitation, retrieval and intensive care which sustain cardiovascular and respiratory functions but are not perfect enough to maintain cerebral function. There is no more devastating or morally challenging condition in modern medicine than the persistent vegetative state (2).

Medical decision making is a complex process and is not always a logical one. The final decision depends on (3,4) the medical facts available, the ethical position, the legal framework, situational factors and the psychological makeup of the physician. This discussion will be confined to the ethical and medical factors influencing the decision regarding management of a patient in a vegetative state.

The ethical framework

It is intuitive and logical to consider basic ethical positions based on the following framework (5):

MOTIVE	ACTION	CONSEQUENCE
SITUATION		

Ethical positions (and theories) differ in their starting point as follows:

Motive	Virtue ethics
Act	Deontological ethics
Consequence	Utilitarianism (the end justifies the means)
Situation	Situation ethics

Medical ethics is a subset of general ethics and has four basic premises (6,7):

Autonomy is the principle that the patient has the final say in his treatment after being offered all possible options (this is in contrast to paternalism in which the doctor makes the final decision). Autonomy is logical in that the patient first comes to a physician in order to remove a discomfort or disability which restricts his full autonomous functioning as a human being. Any therapeutic action which the physician intends to take should have the patient's consent (informed consent) as it may reduce his autonomy even further (e.g. general anaesthesia).

Beneficence implies promotion of well being, and *non-maleficence* means the desire to do no harm. Together they comprise the benefit / risk ratio.

Justice is the premise on which the social distribution of health is decided. This basic premise may be based on *right*: everyone has a right to all levels of healthcare on demand. Cosmetic plastic surgery as well as immunisation should be available on demand. Obviously this view is not practically possible due to the limitation of resources). *Need*

may form the basis of this decision: the medically needy get priority in the allocation of health resources. Need is assessed and decided by the health care provider. Finally, allocation could be given as a priority to those who *deserve* it (in terms of their ability to pay, political power or social position). This position is obviously not articulated but is usually quite obvious to anyone who observes the allocation of health care where quality care is more easily available to the 'deserving'.

In this context, it is important to decide whether the ICU Rule of Rescue (8) — which is to try all possible means to rescue a single endangered life regardless of cost at the expense of many nameless people who will be denied health care — is valid for our country.

It is useful to note that the above tenets of medical ethics are not hierarchal (one does not always take priority over the others — a person with a highly infectious disease may need to be isolated for the sake of the community); neither are they mutually exclusive (a deserving person may also be needy).

ICU ethics is a subset of medical ethics and the following are important goals for ethical intensive care (9): sustaining life, relieving pain and suffering, not prolonging the dying process; and maximising comfort and dignity for the patient and family (10)

It is useful to note that patient autonomy is usually restricted in the ICU (as many of these patients are not conscious) and decisions are made either by surrogates or by the treating physician — what is described as 'therapeutic privilege' (11).

Some important concepts in ICU care are (9,10,12):

Life sustaining therapy: Any medical intervention (medication, procedure or technology) administered to forestall the moment of death whether or not the intervention is intended to affect the underlying life threatening disease(s) or biological processes.

Withdrawal and withholding: Withdrawal implies discontinuation of therapy (even intermittent therapy such as dialysis) and refers to decisions made in an actual situation. Withholding includes two situations: either not initiating new therapy or not escalating existing therapy. Decisions can refer either to actual situations or to hypothetical situations in the future (for example, a Do Not Resuscitate order for CPR).

In most countries, the two are considered ethically equivalent except in Israel where withholding is allowed in all appropriate situations while withdrawing is restricted to brain-dead patients or in those in whom medication has no physiological or therapeutic effect (13).

Futile intervention: There is as yet no gold standard definition for futile therapy. There are recommended diagnostic categories of people who may not benefit from intensive care (14): those who declined intensive care when they were of sound mind, brain dead persons who are not

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organ donors, and those in a persistent vegetative state. Further criteria which have been suggested (but not universally accepted) are if the therapy has been futile for the last 100 cases, and if the chances of survival fall below a defined percentage (the actual percentage varies depending on the authority).

The medical facts (15,16,17,18, 19):

The vegetative state as defined by Jennet and Plum is a state of wakefulness without awareness. There is an absence of any adaptive response to the external environment, and an absence of a functioning mind which is either receiving or projecting information. It is a syndrome of clinical features and does not imply a specific anatomical location or a pathological process. Investigations can be *supportive* of the clinical diagnosis but cannot *per se* be diagnostic.

The following is compatible with a person being in a vegetative state: breathing without mechanical ventilation; periods of sleep and wakefulness; spontaneous movements of eye opening, chewing, swallowing, grinding teeth, smiling, shedding tears, moaning or screaming; and non-purposive response to pain with grimacing or moving limbs.

The following responses are incompatible with a vegetative state: purposeful movements, and attempt at communication.

A vegetative state may be short lived – a persistent vegetative state implies that the state has continued for more than a month and a permanent vegetative state implies that the patient will not recover. The persistent vegetative state is a diagnosis while the permanent vegetative state is a prognosis.

The differential diagnosis for PVS are coma (no spontaneous eye opening), locked in syndrome (ability to communicate with eye movements is preserved) and brain death (no brain stem reflexes and presence of apnoea – inability to breathe off the ventilator). Careful neurological evaluation is essential to differentiate a vegetative state from these conditions. Wrong diagnosis of PVS due to inadequate evaluation is not uncommon.

The prognosis of PVS is well brought out in the results of the American Multi Society Task Force on PVS. Details are available in the reference (17) but the summary is that prognosis is better in younger patients, in post traumatic PVS and in those who start recovery faster. Irrespective of age, the chances of recovery are poor in non traumatic PVS after three months and after one year in post traumatic PVS.

What would I do?

I would first confirm the diagnosis with the help of my neurology colleagues (two of them to concur). All reversible causes including electrolyte abnormalities, drugs and hydrocephalus should be ruled out. I would then inform the family of the possible outcomes and assess their ability to bear the expected financial, medical and psychological stress. Since PVS patients do not need mechanical ventilation, I would shift them out of the ICU as soon as feasible. If all factors are not favourable, I would wait for a month with all life sustaining therapy as needed. If all factors are favourable, I would continue all life sustaining therapy

for three months in nontraumatic PVS and one year in traumatic PVS. Subsequently, I would make a decision to withhold full life sustaining therapy (but would continue fluids and enteral nutrition indefinitely) after the family is given appropriate information and counseled. It has been suggested that in the absence of fluids and nutrition, death is likely to occur in 14 days (19) in these patients.

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